

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-030065**Date Inspected:** 18-Sep-2013**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Bernie Docena, Tony Sherwood**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** SAS Tower**Summary of Items Observed:**

Caltrans Quality Assurance Inspector (QA) Joe Adame arrived at the American Bridge/Fluor (ABF) JV job site between the times noted above in order to monitor ABF Quality Control activities and the in process work being performed by ABF production personnel. The following items were observed:

ESW Repair Excavation Welding

RWR-201308-004

ESW S-043, Location "T"-Face A:

The QA Inspector observed ABF welder Mike Jimenez (WID-4671) continuing Shield Metal Arc Welding (SMAW) on the repair excavation on Electroslag Weld (ESW) "T", at face A. The locations and repair information are listed in Request for Weld Repair (RWR) 201308-002 from Ultrasonic Testing indications designated for repair. The repair excavation was noted as:

Length (Y=3000mm~3480mm) L=480mm, W=75mm, D=40mm

Prior to welding, Mr. Jimenez was observed preheating the weld to over 350° Fahrenheit using the Miller ProHeat 35 with heat induction blankets and a propylene torch. The welder was using 4.0mm diameter electrode (E7018-1 HR4) per ABF Welding Procedure Specification (WPS) ABF-WPS-D15-1000-Repair Rev.3. The welding process in use was the Shielded Metal Arc Welding process (SMAW). The welding parameters were verified by ABF QC Inspector Bernie Docena with a Fluke 337 current Clampmeter and preheat was verified with temperature indicators. The QC Inspector performed welding parameters verifications at random intervals throughout the shift. The welding observed appeared to be in compliance with the WPS noted above. Welding at this location is approx. 85% complete at this time.

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NDT Inspection of Electroslag Welds (ESW)

ESW E-045, Location "F"-Face A, B:

RWR-201307-004

The QA Inspector observed ABF QC Inspector Bernie Docena performed Ultrasonic Testing (UT) on Tower Electroslag Complete Joint Penetration (CJP) weld designated as ESW "F" Face A, B. The inspection was being performed on SMAW repairs. The "Y" Location was noted as: Y=6470mm and additional HAZ areas located 300mm above and below the prosed repair. Mr. Docena and the QA Inspector also performed UT inspection for verification of planar indications using both the "pulse echo" (PE) technique and the "pitch and catch" (PC) technique to verify recordable indications above and below the repair. The Inspection was performed at the locations listed below.

Location "F" (Face A, B) 60mm Thick, 70° Angle-

SMAW Repair Y: 6470mm, X: N/A, Face A, B

-PEUT: No rejectable indications observed.

Y: 6700mm, X: -10mm, Face A

-PEUT: Ind. Lvl (A): 69, Ref. Lvl (B): 51, Att. Factor(C): 8, Ind. Rating (D): 10, SD (E): 120

-PCUT: Ind. Lvl (A): 88, Ref. Lvl (B): 51, Att. Factor(C): 12, Ind. Rating (D): 25, SPa (E): 95

* Indication @ 6700 Face B non-recordable.

Y: 6840mm, X: -8mm, Face B

-PEUT: Ind. Lvl (A): 70, Ref. Lvl (B): 51, Att. Factor(C): 8, Ind. Rating (D): 11, SD (E): 117

-PCUT: Ind. Lvl (A): 90, Ref. Lvl (B): 51, Att. Factor(C): 12, Ind. Rating (D): 27, SPa (E): 90

* Indication @ 6840 Face A non-recordable.

The UT inspection was performed in accordance with the per ABF supplemental procedure 1, 2 & 3 Ultrasonic Testing of ESW groove welds. The tandem report for work performed on this date will be completed by Mr. Docena and signed by both QA/QC parties. Items listed on tandem report reflect indications agreed upon by QA/QC. See TL-6027 for additional details on the items inspected on this date.

ESW Repair excavation

RWR-201308-002

ESW N-043, Location "P"-Face A:

The QA Inspector observed ABF welder Donald Plumb (WID-0891) performing excavation of ESW "P" Face A @ Y-1330mm to verify indications observed during Ultrasonic Testing pulse/echo & pitch/catch. Mr. Plumb was performing the excavation using an air carbon arc gouging and a grinder. The welder was instructed by ABF QC Inspector Bernie Docena to notify him when indications are visible to allow QC/QA time to inspect the excavation.

Location of the repair is as follows:

Weld excavated at 46mm dp- 20mm long planar indication observed @ 1330mm.

Weld excavated at 50mm dp- 3mm long planar indication observed @ 1330mm.

Weld excavated at 55mm dp- No indications observed.

Excavation Length (Y=1270mm~1470mm) L-270mm, W= 50mm, D= 55mm.

After grinding to bright metal the QC Inspector performed Magnetic Particle Testing (MT) testing of the excavation. The QC Inspector stated the excavation appears to be free of discontinuities and he would complete ABF daily inspection report and magnetic particle testing report to detail the findings. Mr. Docena b also stated that since the indication observed appeared to be a planar indication (centerline crack), the repair will be performed at both faces of the ESW weld at this Y location to remove the original ESW weld. The QA Inspector also performed MT inspection of the final excavation. After excavation Mr. Plumb was observed setting up to

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perform SMAW repair welding on this date. See TL-6028 for additional details on items inspected on this date.



Summary of Conversations:

Only general conversations with ABF/JV QC NDT personnel relevant to work and testing performed during this shift.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Gary Thomas (916) 764-6027, who represents the Office of Structural Materials for your project.

Inspected By: Adame,Joe

Quality Assurance Inspector

Reviewed By: Riley,Ken

QA Reviewer